

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (withdrawn) A method for forming a three dimensional soft magnetic metal mass suitable for milling, comprising the steps of:

wrapping a soft magnetic metal ribbon into a three dimensional shape;
applying an adhesive to the three dimensional shape to allow permeation of the adhesive into the three dimensional shape; and
curing the adhesive.

2. (withdrawn) The method of claim 1 where the step of applying an adhesive to the three dimensional shape comprises an ambient atmospheric soak process.

3. (withdrawn) The method of claim 1 where the step of applying the adhesive comprises a wet spray process applied during winding.

4. (withdrawn) The method of claim 1 where the step of applying the adhesive comprises an electrolytic deposition process during winding.

5. (withdrawn) The method of claim 1 where the step of applying an adhesive to the three dimensional shape comprises:

providing a vessel containing adhesive;
immersing the three dimensional shape in the adhesive; and
evacuating the vessel.

6. (withdrawn) The method of claim 2 or 5 where the step of curing the adhesive comprises the step of heat treating the three dimensional shape.

7. (withdrawn) The method of claim 6 where the soft magnetic metal ribbon has a thermal processing temperature, and the step of heat treating the three dimensional shape occurs at a heat treating temperature, and the heat treating temperature is a fraction of the thermal processing temperature.

8. (withdrawn) The method of claim 7 where the fraction is about 1/2.

9. (withdrawn) The method of claim 7 where the fraction is about 3/4.

10. (withdrawn) The method of claim 7 where the fraction is about 1/4.

11. (withdrawn) A three-dimensional soft magnetic metal mass suitable for milling made in accordance with claim 1.

12. (withdrawn) A method for forming a soft magnetic metal toroid suitable for milling comprising the steps:

- winding a soft magnetic metal ribbon into a toroid;
- applying an adhesive to the toroid; and
- curing the adhesive.

13. (withdrawn) The method of claim 12 where the step of applying an adhesive to the soft magnetic metal toroid comprises an ambient atmospheric soak process.

14. (withdrawn) The method of claim 12 where the step of applying an adhesive to the soft magnetic metal toroid comprises:

- providing a vessel containing adhesive;
- immersing the soft magnetic metal toroid in the adhesive; and
- evacuating the vessel.

15. (withdrawn) The method of claim 13 or 14 where the step of curing the adhesive includes a step of heat treating the toroid.

16. (withdrawn) The method of claim 12 where the soft magnetic metal ribbon has a thermal processing temperature, and the step of heat treating the toroid occurs at a heat treating temperature, and the heat treating temperature is a fraction of the thermal processing temperature.

17. (withdrawn) The method of claim 16 where the fraction is about 1/2.

18. (withdrawn) The method of claim 16 where the fraction is about 3/4.

19. (withdrawn) The method of claim 16 where the fraction is about 1/4.

20-31. (cancelled)

32. (currently amended) A method for manufacturing a soft magnetic metal electro-mechanical component comprising the steps of:

winding soft magnetic metal ribbon into a toroid having an inner side surface, an outer side surface, a top, and a bottom;

containing the toroid within a milling assembly, said containing comprising placing an inner ring circumferentially about at least a portion of the inner side surface;

applying an adhesive to the toroid;

curing the adhesive;

milling the toroid into an electro-mechanical component shape; and

thermally processing the electro-mechanical component shape into an electro-mechanical component.

33. (withdrawn) The method of claim 32 including the step of: removing the toroid from the milling assembly.

34. (cancelled)

35. (canceled)

36. (currently amended) The method of claim 34-32 where the step of containing the toroid within a milling assembly further comprises placing an outer ring circumferentially about at least a portion of the outer side surface.

37. (currently amended) The method of claim 34-32 where the step of containing the toroid within a milling assembly further comprises placing a hat on at least a portion of the top.

38. (currently amended) The method of claim 34-32 where the step of containing the toroid within a milling assembly further comprises placing a base on at least a portion of the bottom ~~and placing at least one of an inner ring circumferentially about at least a portion of the inner side surface, an outer ring circumferentially about at least a portion of the outer side surface, and a hat on at least a portion of the top.~~

39. (currently amended) The method of claim 34-32 where the step of containing the toroid within a milling assembly further comprises the steps of:

~~placing an inner ring circumferentially about at least a portion of the inner side surface;~~

placing an outer ring circumferentially about at least a portion of the outer side surface; and

placing a hat on at least a portion of the top.

40. (original) The method of claim 39 where the inner ring is placed about substantially all of the inner side surface.

41. (original) The method of claim 39 where the outer ring is placed about substantially all of the outer side surface.

42. (original) The method of claim 39 where the hat is placed about substantially all of the top.

43. (original) The method of claim 39 where a milling plate is placed about substantially all of the bottom.
44. (original) The method of claim 39 where the hat and the outer ring are integral.
45. (original) The method of claim 39 where the hat, outer ring and inner ring are integral.
46. (original) The method of claim 39 including the step of placing a retainer around the outer ring to secure the toroid within the milling assembly.
47. (original) The method of claim 40 including the step of providing milling grooves within the milling assembly.
48. (withdrawn) The method of claim 32 where the toroid has a ribbon winding axis, and the step of milling the toroid into a toroid shape consists of milling the toroid primarily in an axis perpendicular to the winding axis.
49. (withdrawn) The method of claim 32 where the toroid has a winding axis, and the step of milling the toroid into a toroid shape consists of milling the toroid exclusively in an axis perpendicular to the winding axis.
50. (original) The method of claim 45 where the toroid has a winding axis, and the step of milling the toroid into a toroid shape consists of milling the toroid primarily in an axis perpendicular to the winding axis.
51. (original) The method of claim 45 where the hat and outer ring have slots, and the step of milling the toroid into an electro-mechanical component shape includes milling through the slots.

52. (original) The method of claim 45 where the toroid has a winding axis, and the step of milling the toroid into an electro-mechanical component shape consists of milling the toroid with the cutting tool rotating exclusively in an axis perpendicular to the winding axis.

53. (original) The method of claim 50 where the where the hat and outer ring have slots, and the step of milling the toroid into an electro-mechanical component shape includes milling through the slots.

54. (withdrawn) A soft magnetic metal electro-mechanical component made from the process of claim 32.

55. (withdrawn) A method for manufacturing a soft magnetic metal electro-mechanical component comprising the steps of:

winding soft magnetic metal ribbon about a winding axis into a toroid, the toroid having an inner side, an outer side, a top and a bottom;
placing an inner ring on the inner side;
placing an inner containment hat on the top and inner side;
placing an outer containment hat on the top and outer side;
placing a retainer around the outer containment hat; applying adhesive to the toroid;
curing the adhesive;
milling the toroid into an electromechanical component shape; and
thermally processing the electromechanical component shape into an electro-mechanical component.

56. (withdrawn) The method of claim 55 where the inner containment hat has a plurality of inner containment hat slots and the outer containment hat has a plurality of outer containment hat slots, and the step of milling the toroid into a electromechanical component shape comprises milling through the inner containment hat slots and the outer containment hat slots.

57. (withdrawn) The method of claim 56 including a step of aligning the inner containment hat slots and the outer containment hat slots.

58. (withdrawn) The method of claim 55 where the step of milling the toroid into an electro-mechanical component shape occurs with the cutting tools rotating primarily on an axis perpendicular to the winding axis.

59. (withdrawn) The method of claim 55 where the step of milling the toroid into an electro-mechanical component shape occurs with the cutting tools rotating exclusively on an axis perpendicular to the winding axis.

60. (withdrawn) The method of claim 32 where the step of applying the adhesive to the toroid comprises an atmospheric soak process.

61. (withdrawn) The method of claim 32 where the step of applying adhesive to the toroid includes the steps of:

- providing a vessel containing the adhesive;
- immersing the toroid in the adhesive; and
- evacuating the vessel.

62. (withdrawn) The method of claim 32 where the step of curing the adhesive is carried out at a heat treating temperature and the step of thermally processing the electro-mechanical component shape occurs at a thermal processing temperature, and wherein the heat treating temperature is a fraction of the heat processing temperature.

63. (withdrawn – currently amended) The method of claim 3262 where the fraction is about 1/2.

64. (withdrawn – currently amended) The method of claim 3262 where the fraction is about 3/4.

65. (withdrawn – currently amended) The method of claim 3262 where the fraction is about 1/4.

66. (new) A method for manufacturing a soft magnetic metal electro-mechanical component comprising the steps of:

winding soft magnetic metal ribbon into a toroid having an inner side surface, an outer side surface, a top and a bottom;

containing the toroid within a milling assembly, said containing comprising placing an outer ring circumferentially about at least a portion of the outer side surface;

applying an adhesive to the toroid;

curing the adhesive;

milling the toroid into an electro-mechanical component shape; and

thermally processing the electro-mechanical component shape into an electro-mechanical component.

67. (new) The method of claim 66 where the step of containing the toroid within a milling assembly further comprises placing a hat on at least a portion of the top

68. (new) The method of claim 66 where the step of containing the toroid within a milling assembly further comprises placing a base on at least a portion of the bottom

69. (new) The method of claim 66 where the outer ring is placed about substantially all of the outer side surface.

70. (new) The method of claim 67 where the hat is placed about substantially all of the top.

71. (new) The method of claim 66 where a milling plate is placed about substantially all of the bottom.

72. (new) The method of claim 67 where the hat and the outer ring are integral.

73. (new) A soft magnetic metal electro-mechanical component made from the process of claim 66.